WHAT IS CLAIMED IS:

1. An amphiphilic molecule comprising a hydrophilic compound having attached, at spatially distinct sites, at least two hydrophobic moieties.

2. The amphiphilic molecule of claim 1, wherein said hydrophilic compound is a hydrophilic polymer.

3. The amphiphilic molecule of claim 1, wherein said hydrophilic compound is a biocompatible compound.

4. The amphiphilic molecule of claim 1, wherein said hydrophilic compound is a substantially linear, a branched, a pendant or a star hydrophilic compound.

5. The amphiphilic molecule of claim 4, wherein said hydrophilic compound is a substantially linear hydrophilic compound.

6. The amphiphilic molecule of claim 4, wherein said hydrophilic compound is a branched hydrophilic compound.

7. The amphiphilic molecule of claim 1, wherein said hydrophilic compound is a hydrophilic compound from Table 1.

8. The amphiphilic molecule of claim 7, wherein said hydrophilic compound is a polyethylene glycol.

9. The amphiphilic molecule of claim 8, wherein said hydrophilic compound is a polyethylene glycol with an average molecular weight of between about 100 and about 100,000 daltons.

10. The amphiphilic molecule of claim 9, wherein said hydrophilic compound is a polyethylene glycol with an average molecular weight of between about 100 and about 10,000 daltons.

11. The amphiphilic molecule of claim 1, wherein said hydrophobic moieties are between about 8 carbon atoms and about 26 carbon atoms in length.

12. The amphiphilic molecule of claim 11, wherein said hydrophobic moieties are between about 12 carbon atoms and about 20 carbon atoms in length.

13. The amphiphilic molecule of claim 1, wherein at least one of said hydrophobic moieties is a single, double, multiple, linear or branched chain hydrophobic moiety.

14. The amphiphilic molecule of claim 1, wherein at least one of said hydrophobic moieties is a hydrophobic moiety from Table 2.

15. The amphiphilic molecule of claim 1, wherein at least one of said hydrophobic moieties is an alkylether, fattyester, dialkylglycerol, alkylamino, dialkylamino, diacylglycerol, sphingolipid, synthetic cationic lipid precursor, sterol, cholestanic acid, a phospholipid or perfluoro analog thereof.

16. The amphiphilic molecule of claim 15, wherein at least one of said hydrophobic moieties is 1,2-distearoylglycerol or 1,2-dioleoylglycerol, ceramidophosphoric acid or O-acetyl-ceramidophosphoric acid, 1,2-dioleyl-3-dimethylaminopropanediol, 1,2-dimyristoyl-3-dimethylaminopropanediol, cholesterol or β-sitosterol, distearoyl phosphatidic acid, dioleylphosphatidic acid, a bisphosphatidyl glycerol, phosphatidylethanolamine or a phosphatidylinositol.

17. The amphiphilic molecule of claim 1, wherein said hydrophilic compound is attached to two hydrophobic moieties.

18. The amphiphilic molecule of claim 1, wherein said hydrophilic compound is attached to at least three hydrophobic moieties.

19. The amphiphilic molecule of claim 18, wherein said hydrophilic compound is attached to at least five hydrophobic moieties.

20. The amphiphilic molecule of claim 19, wherein said hydrophilic compound is attached to at least about ten hydrophobic moieties.

21. The amphiphilic molecule of claim 1, wherein said hydrophilic compound is attached to between about two and about twenty hydrophobic moieties.

22. The amphiphilic molecule of claim 1, wherein said hydrophilic compound is attached to a plurality of hydrophobic moieties.

23. The amphiphilic molecule of claim 1, wherein at least two identical hydrophobic moieties are attached to said hydrophilic compound.

24. The amphiphilic molecule of claim 1, wherein at least two non-identical hydrophobic moieties are attached to said hydrophilic compound.

25. The amphiphilic molecule of claim 1, wherein at least one of said hydrophobic moieties is attached at, or substantially at, one terminus of said hydrophilic compound.

26. The amphiphilic molecule of claim 1, wherein said amphiphilic molecule is a bipodal amphiphilic molecule comprising a hydrophilic compound having a first and a second hydrophobic moiety separately attached to spatially distant sites of said hydrophilic compound.

27. The amphiphilic molecule of claim 26, wherein said amphiphilic molecule is a bipodal amphiphilic molecule comprising a substantially linear hydrophilic compound having a first and a second hydrophobic moiety separately attached to each terminus or proximal thereto.

28. The amphiphilic molecule of claim 1, wherein said amphiphilic molecule is an oligopodal or polypodal amphiphilic molecule comprising a branched or star hydrophilic compound to which a plurality of hydrophobic moieties are separately attached.

29. The amphiphilic molecule of claim 1, wherein at least one of said hydrophobic moieties is attached to said hydrophilic compound *via* a covalent bond.

30. The amphiphilic molecule of claim 29, wherein at least two of the hydrophobic moieties attached to said hydrophilic compound are attached *via* a covalent bond.

31. The amphiphilic molecule of claim 30, wherein each of the hydrophobic moieties attached to said hydrophilic compound are attached *via* a covalent bond.

32. The amphiphilic molecule of claim 29, wherein at least one of said hydrophobic moieties is attached to said hydrophilic compound *via* an alkylamine, alkylether, alkylammonium, carbamate, amide, ether, ester or phosphodiester bond.

33. The amphiphilic molecule of claim 32, wherein at least one of said hydrophobic moieties is attached to said hydrophilic compound *via* an ester or phosphodiester bond.

34. The amphiphilic molecule of claim 29, wherein at least one of said hydrophobic moieties is attached to said hydrophilic compound *via* a chemical linker.

35. The amphiphilic molecule of claim 29, wherein at least one of said hydrophobic moieties is attached to said hydrophilic compound *via* a biologically releasable bond.

36. The amphiphilic molecule of claim 29, wherein said hydrophilic compound is derivatized to introduce at least one functional group permitting the attachment of at least one of said hydrophobic moieties *via* a covalent bond.

37. The amphiphilic molecule of claim 36, wherein said hydrophilic compound is derivatized to introduce at least one aldehyde, thiol, alkyl, dialkylamino, amino, carboxyl or polyol functional group.

38. The amphiphilic molecule of claim 1, wherein said hydrophilic compound further comprises a selected agent attached at a site distinct from said at least two hydrophobic moieties.

39. The amphiphilic molecule of claim 1, formulated in a population of like molecules.

40. The amphiphilic molecule of claim 1, wherein said amphiphilic molecule forms a liquid-crystalline multimolecular aggregate upon contact of a number of said amphiphilic molecules with an aqueous solution.

41. The amphiphilic molecule of claim 1, wherein said amphiphilic molecule is formulated into a micelle, monolayer, bilayer, multimolecular aggregate, lipid microemulsion, oil globule, fat globule, wax globule, synthetic microreservoir or liposome.

42. The amphiphilic molecule of claim 1, in non-covalent association with at least one distinct amphiphilic, hydrophilic or hydrophobic molecule or population thereof.

43. The amphiphilic molecule of claim 42, wherein said amphiphilic molecule is formulated with at least one or more lipid components to form a liposome or lipid complex with at least one liposome bilayer.

44. The amphiphilic molecule of claim 43, wherein said amphiphilic molecule is formulated with at least one or more lipid components to form a liposome comprising at least an outer liposome bilayer, wherein the hydrophilic compound of said amphiphilic molecule is in contact with at least a portion of said outer liposome bilayer and wherein the hydrophobic moieties of said amphiphilic molecule extend into said outer liposome bilayer.

45. The amphiphilic molecule of claim 44, wherein said amphiphilic molecule comprises a plurality of hydrophobic moieties that extend into the outer liposome bilayer and wherein said hydrophilic compound extends in contact over a substantial portion of said outer liposome bilayer.

46. The amphiphilic molecule of claim 43, wherein said liposome further comprises at least one surface available antibody, binding ligand or antigen disposed in the liposome bilayer or tethered to a component of the liposome bilayer.

47. The amphiphilic molecule of claim 43, wherein said liposome further comprises a selected agent.

48. The amphiphilic molecule of claim 47, wherein said liposome comprises a selected pharmacological agent, an oxygen carrier, a nutrient, an antigen, a contrast agent or a pheromone.

49. The amphiphilic molecule of claim 48, wherein said amphiphilic molecule is formulated into a liposome that comprises a chemotherapeutic agent, an antibiotic, an anti-viral, a fungicide, an anaesthetic, an anti-inflammatory agent, an enzyme, a hormone, growth factor, a cytokine, a neurotransmitter, an immunogen or haemoglobin.

50. The amphiphilic molecule of claim 1, wherein said amphiphilic molecule is contacted with a biological cell to form an amphiphile-coated biological cell, wherein the hydrophilic compound of said amphiphilic molecule is in contact with at least a portion of the outer surface of the cell and wherein the hydrophobic moieties of said amphiphilic molecule extend into the outer membrane of the cell.

51. The amphiphilic molecule of claim 50, wherein said amphiphilic molecule is contacted with a red blood cell to form an amphiphile-coated red blood cell.

52. An amphiphilic molecule comprising a hydrophilic compound having covalently attached, at spatially distant sites, at least two hydrophobic moieties, said amphiphilic molecule

forming a liquid-crystalline multimolecular aggregate upon contact of a number of said amphiphilic molecules with an aqueous solution, wherein the mesophases of said liquid-crystalline multimolecular aggregates, as characterized by X-ray diffraction, include the fluid L_α and gel $L_{\beta'}$ phases.

53. A liquid-crystalline multimolecular aggregate comprising a plurality of amphiphilic molecules dispersed in an aqueous solution, said amphiphilic molecules each comprising a hydrophilic compound having attached, at spatially distinct sites, at least two hydrophobic moieties.

54. A liposome or lipid complex comprising an amphiphilic molecule that comprises a hydrophilic compound positioned over at least a portion of the outer surface of said liposome or lipid complex, the hydrophilic compound having attached, at spatially distinct sites, at least two hydrophobic moieties that extend into the hydrophobic bilayer of said liposome or lipid complex.

55. The liposome or complex of claim 54, wherein said amphiphilic molecule comprises a plurality of hydrophobic moieties that extend into the hydrophobic bilayer of said liposome or lipid complex and wherein said hydrophilic compound is positioned over a substantial portion of the outer surface of said liposome or lipid complex.

56. A method of making an amphiphilic molecule, comprising attaching at least two hydrophobic moieties to spatially distinct sites of a hydrophilic compound.

57. A method of making a liposome or lipid complex comprising admixing, in an excess of an aqueous solution, a population of lipid components with a population of prehydrated amphiphilic molecules that comprise a hydrophilic compound having at least two hydrophobic moieties attached at spatially distinct sites, said admixing effective to form a liposome or lipid complex.

58. A method of making an amphiphilic material-coated liposome, lipid complex or biological cell, comprising contacting a liposome, lipid complex or biological cell with an amphiphilic material that comprises a hydrophilic compound having at least two hydrophobic moieties attached at spatially distinct sites, such that said hydrophobic moieties extend into the hydrophobic bilayer of said liposome, complex or cell and said hydrophilic compound is positioned over at least a portion of the surface of said liposome, lipid complex or cell.

59. The method of claim 58, wherein said biological cell is a red blood cell.

60. The method of claim 59, wherein said biological cell is a human red blood cell.

61. A method of encapsulating or entrapping a selected agent in a liposome or lipid complex, comprising admixing a selected agent with a population of liposomes or lipid complexes that comprise an amphiphilic molecule that comprises a hydrophilic compound positioned over at least a portion of the outer surface of the liposome or complex, the hydrophilic compound having attached, at spatially distinct sites, at least two hydrophobic moieties that extend into the hydrophobic bilayer of the liposome or complex, said admixing effective to cause encapsulation or entrapment of said selected agent in said liposome or lipid complex.

62. A kit comprising, in suitable container means, an amphiphilic molecule comprising a hydrophilic compound having attached, at spatially distinct sites, at least two hydrophobic moieties; or a liposomal formulation comprising said amphiphilic molecule.

63. The kit of claim 62, wherein said kit further comprises a selected agent.

64. A cosmetic formulation comprising, in a cosmetically acceptable base, a population of liposomes or lipid complexes that comprise an amphiphilic molecule that comprises a hydrophilic compound positioned over at least a portion of the outer surface of the liposome or complex, the hydrophilic compound having attached, at spatially distinct sites, at least two hydrophobic moieties that extend into the hydrophobic bilayer of the liposome or lipid complex.

65. A medicinal delivery composition comprising, in a pharmaceutically acceptable vehicle, a population of liposomes or lipid complexes comprising a selected agent; wherein said liposomes or complexes comprise an amphiphilic molecule that comprises a hydrophilic compound positioned over at least a portion of the outer surface of the liposome or complex, the hydrophilic compound having attached, at spatially distinct sites, at least two hydrophobic moieties that extend into the hydrophobic bilayer of the liposome or lipid complex.

66. A method for providing a selected agent to an animal, comprising administering to said animal a medicinal delivery composition comprising, in a pharmaceutically acceptable vehicle, a population of liposomes or lipid complexes comprising said selected agent; wherein said liposomes or complexes comprise an amphiphilic molecule that comprises a hydrophilic compound positioned over at least a portion of the outer surface of the liposome or complex,

the hydrophilic compound having attached, at spatially distinct sites, at least two hydrophobic moieties that extend into the hydrophobic bilayer of the liposome or lipid complex.

67. The method of claim 66, wherein said selected agent is a nutritional supplement.

68. The method of claim 66, wherein said selected agent is hemoglobin, a coagulant or a blood product.

69. The method of claim 66, wherein said selected agent is an antigen, an antibody, an immunological component, a cytokine or an anti-inflammatory agent.

70. The method of claim 66, wherein said selected agent is a chemotherapeutic agent or cytotoxin.

71. The method of claim 66, wherein said selected agent is an enzyme, hormone, growth factor or neurotransmitter.

72. The method of claim 66, wherein said selected agent is an antibiotic, an anti-viral or a fungicide.

73. The method of claim 66, wherein said selected agent is an anaesthetic or a surfactant.

74. The method of claim 66, wherein said selected agent is a nucleic acid molecule, construct or vector.

75. The method of claim 66, wherein said animal is a human subject.